

10/561570

SEQUENCE LISTING **IAP20 Rec'd 10/17/05** 20 DEC 2005

<110> Watanabe, Shinichi
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 Bacon, Kevin

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Lys	Asn	Glu	Ala	Met	Glu	Pro	Asn	Asn	Ile	Leu	Glu	Glu	Cys	Thr	Val	
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Pro Gly Gly Ser Ile Ser Ser Ile Ile Asn Arg Phe Gly Pro Leu Pro		
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Val Met Leu Met Pro Thr Gly Ile Ile Lys Leu Ile Asp Phe Gly Cys		
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Ala Arg Arg Leu Ala Trp Ala Gly Leu Asn Gly Thr His Ser Asp Met		
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Leu Lys Ser Met His Gly Thr Pro Tyr Trp Met Ala Pro Glu Val Ile		
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Asn Glu Ser Gly Tyr Gly Arg Lys Ser Asp Ile Trp Ser Ile Gly Cys		
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Thr Val Phe Glu Met Ala Thr Gly Lys Pro Pro Leu Ala Ser Met Asp		
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Pro Leu Pro Asp His Phe Ser Glu Asn Ala Ala Asp Phe Val Arg Met		
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35 40 45
Met Ser Gln Glu Asp Leu Lys Glu Lys Asn Leu Ile Asn Ser Ser Leu
50 55 60
Gln Glu Trp Ala Gln Ala His Ala Val Ser His Pro Asn Glu Ile Glu
65 70 75 80
Thr Val Glu Leu Arg Lys Lys Lys Leu Thr Met Arg Pro Leu Val Leu
85 90 95
Gln Lys Glu Glu Ser Ser Arg Glu Leu Cys Asn Val Asn Leu Gly Phe
100 105 110
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115 120 125
Arg Glu Asp Ala Pro His Phe Leu Lys Glu Gln Gln Arg Lys Ser Glu
130 135 140
Glu Phe Ser Thr Ser His Met Lys Tyr Ser Gly Arg Ser Ile Lys Phe
145 150 155 160
Leu Leu Pro Pro Leu Ser Leu Leu Pro Thr Arg Ser Gly Val Leu Thr
165 170 175
Ile Pro Gln Asn His Lys Phe Pro Lys Glu Lys Glu Arg Asn Ile Pro
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Leu	Met	Asp	Pro	Thr	Leu	Arg	Ser	Ser	Asp	Gly	Phe	Ile	Trp	Ser	Arg
225					230					235					240
Asn	Met	Cys	Ser	Phe	Pro	Lys	Thr	Asn	His	His	Arg	Gln	Cys	Leu	Glu
				245					250					255	
Lys	Glu	Glu	Asn	Trp	Lys	Ser	Lys	Glu	Ile	Glu	Glu	Cys	Asn	Lys	Ile
			260					265					270		
Glu	Ile	Thr	His	Phe	Glu	Lys	Gly	Gln	Ser	Leu	Val	Ser	Phe	Glu	Asn
		275					280					285			
Leu	Lys	Glu	Gly	Asn	Ile	Pro	Ala	Val	Arg	Glu	Glu	Asp	Ile	Asp	Cys
	290					295					300				
His	Gly	Ser	Lys	Thr	Arg	Lys	Pro	Glu	Glu	Glu	Asn	Ser	Gln	Tyr	Leu
305					310					315					320
Ser	Ser	Arg	Lys	Asn	Glu	Ser	Ser	Val	Ala	Lys	Asn	Tyr	Glu	Gln	Asp
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Pro	Glu	Ile	Val	Cys	Thr	Ile	Pro	Ser	Lys	Phe	Gln	Glu	Thr	Gln	His
			340					345					350		
Ser	Glu	Ile	Thr	Pro	Ser	Gln	Asp	Glu	Glu	Met	Arg	Asn	Asn	Lys	Ala
		355					360					365			
Ala	Ser	Lys	Arg	Val	Ser	Leu	His	Lys	Asn	Glu	Ala	Met	Glu	Pro	Asn
	370					375					380				
Asn	Ile	Leu	Glu	Glu	Cys	Thr	Val	Leu	Lys	Ser	Leu	Ser	Ser	Val	Val
385					390					395					400
Phe	Asp	Asp	Pro	Ile	Asp	Lys	Leu	Pro	Glu	Gly	Cys	Ser	Ser	Met	Glu
				405					410					415	
Thr	Asn	Ile	Lys	Ile	Ser	Ile	Ala	Glu	Arg	Ala	Lys	Pro	Glu	Met	Ser
			420					425					430		
Arg	Met	Val	Pro	Leu	Ile	His	Ile	Thr	Phe	Pro	Val	Asp	Gly	Ser	Pro
		435					440					445			
Lys	Glu	Pro	Val	Ile	Ala	Lys	Pro	Ser	Leu	Gln	Thr	Arg	Lys	Gly	Thr
	450					455					460				
Ile	His	Asn	Asn	His	Ser	Val	Asn	Ile	Pro	Val	His	Gln	Glu	Asn	Asp
465					470					475					480
Lys	His	Lys	Met	Asn	Ser	His	Arg	Ser	Lys	Leu	Asp	Ser	Lys	Thr	Lys
				485					490					495	
Thr	Ser	Lys	Lys	Thr	Pro	Gln	Asn	Phe	Val	Ile	Ser	Thr	Glu	Gly	Pro
			500					505					510		
Ile	Lys	Pro	Thr	Met	His	Lys	Thr	Ser	Ile	Lys	Thr	Gln	Ile	Phe	Pro
		515					520					525			
Ala	Leu	Gly	Leu	Val	Asp	Pro	Arg	Pro	Trp	Gln	Leu	Pro	Arg	Phe	Gln
	530					535					540				
Lys	Lys	Met	Pro	Gln	Ile	Ala	Lys	Lys	Gln	Ser	Thr	His	Arg	Thr	Gln
545					550					555					560
Lys	Pro	Lys	Lys	Gln	Ser	Phe	Pro	Cys	Ile	Cys	Lys	Asn	Pro	Gly	Thr
				565					570					575	
Gln	Lys	Ser	Cys	Val	Pro	Leu	Ser	Val	Gln	Pro	Thr	Glu	Pro	Arg	Leu
			580					585					590		
Asn	Tyr	Leu	Asp	Leu	Lys	Tyr	Ser	Asp	Met	Phe	Lys	Glu	Ile	Asn	Ser
		595					600					605			
Thr	Ala	Asn	Gly	Pro	Gly	Ile	Tyr	Glu	Met	Phe	Gly	Thr	Pro	Val	Tyr
	610					615					620				
Cys	His	Val	Arg	Glu	Thr	Glu	Arg	Asp	Glu	Asn	Thr	Tyr	Tyr	Arg	Glu
625					630					635					640
Ile	Cys	Ser	Ala	Pro	Ser	Gly	Arg	Arg	Ile	Thr	Asn	Lys	Cys	Arg	Ser
				645					650					655	
Ser	His	Ser	Glu	Arg	Lys	Ser	Asn	Ile	Arg	Thr	Arg	Leu	Ser	Gln	Lys
			660					665					670		
Lys	Thr	His	Met	Lys	Cys	Pro	Lys	Thr	Ser	Phe	Gly	Ile	Lys	Gln	Glu

		675					680					685					
His	Lys	Val	Leu	Ile	Ser	Lys	Glu	Lys	Ser	Ser	Lys	Ala	Val	His	Ser		
	690					695					700						
Asn	Leu	His	Asp	Ile	Glu	Asn	Gly	Asp	Gly	Ile	Ser	Glu	Pro	Asp	Trp		
705					710					715					720		
Gln	Ile	Lys	Ser	Ser	Gly	Asn	Glu	Phe	Leu	Ser	Ser	Lys	Asp	Glu	Ile		
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His	Pro	Met	Asn	Leu	Ala	Gln	Thr	Pro	Glu	Gln	Ser	Met	Lys	Gln	Asn		
			740					745					750				
Glu	Phe	Pro	Pro	Val	Ser	Asp	Leu	Ser	Ile	Val	Glu	Glu	Val	Ser	Met		
	755					760						765					
Glu	Glu	Ser	Thr	Gly	Asp	Arg	Asp	Ile	Ser	Asn	Asn	Gln	Ile	Leu	Thr		
770					775						780						
Thr	Ser	Leu	Arg	Asp	Leu	Gln	Glu	Leu	Glu	Glu	Leu	His	His	Gln	Ile		
785				790						795					800		
Pro	Phe	Ile	Pro	Ser	Glu	Asp	Ser	Trp	Ala	Val	Pro	Ser	Glu	Lys	Asn		
			805					810						815			
Ser	Asn	Lys	Tyr	Val	Gln	Gln	Glu	Lys	Gln	Asn	Thr	Ala	Ser	Leu	Ser		
		820					825						830				
Lys	Val	Asn	Ala	Ser	Arg	Ile	Leu	Thr	Asn	Asp	Leu	Glu	Phe	Asp	Ser		
	835					840				845							
Val	Ser	Asp	His	Ser	Lys	Thr	Leu	Thr	Asn	Phe	Ser	Phe	Gln	Ala	Lys		
850					855					860							
Gln	Glu	Ser	Ala	Ser	Ser	Gln	Thr	Tyr	Gln	Tyr	Trp	Val	His	Tyr	Leu		
865				870					875						880		
Asp	His	Asp	Ser	Leu	Ala	Asn	Lys	Ser	Ile	Thr	Tyr	Gln	Met	Phe	Gly		
			885					890						895			
Lys	Thr	Leu	Ser	Gly	Thr	Asn	Ser	Ile	Ser	Gln	Glu	Ile	Met	Asp	Ser		
		900					905						910				
Val	Asn	Asn	Glu	Glu	Leu	Thr	Asp	Glu	Leu	Leu	Gly	Cys	Leu	Ala	Ala		
	915					920					925						
Glu	Leu	Leu	Ala	Leu	Asp	Glu	Lys	Asp	Asn	Asn	Ser	Cys	Gln	Lys	Met		
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Ala	Asn	Glu	Thr	Asp	Pro	Glu	Asn	Leu	Asn	Leu	Val	Leu	Arg	Trp	Arg		
945				950					955						960		
Gly	Ser	Thr	Pro	Lys	Glu	Met	Gly	Arg	Glu	Thr	Thr	Lys	Val	Lys	Ile		
			965					970						975			
Gln	Arg	His	Ser	Ser	Gly	Leu	Arg	Ile	Tyr	Asp	Arg	Glu	Glu	Lys	Phe		
		980					985						990				
Leu	Ile	Ser	Asn	Glu	Lys	Lys	Ile	Phe	Ser	Glu	Asn	Ser	Leu	Lys	Ser		
	995					1000						1005					
Glu	Glu	Pro	Ile	Leu	Trp	Thr	Lys	Gly	Glu	Ile	Leu	Gly	Lys	Gly	Ala		
1010						1015					1020						
Tyr	Gly	Thr	Val	Tyr	Cys	Gly	Leu	Thr	Ser	Gln	Gly	Gln	Leu	Ile	Ala		
1025				1030						1035					1040		
Val	Lys	Gln	Val	Ala	Leu	Asp	Thr	Ser	Asn	Lys	Leu	Ala	Ala	Glu	Lys		
			1045					1050						1055			
Glu	Tyr	Arg	Lys	Leu	Gln	Glu	Glu	Val	Asp	Leu	Leu	Lys	Ala	Leu	Lys		
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	1075					1080											

<210> 9
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 <212> PRT
 <213> Homo sapiens

<400> 9
 Ser Lys Lys Gln Gln Leu Leu Asp Ile Leu Met Ser Ser Met Pro Lys
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Ser	Ser	Pro	Thr	Asp	Leu	Met	Thr	Val	Thr	Lys	Asn	Gln	Asn	Ile	Ile
		35					40					45			
Leu	Gln	Ser	Ile	Ser	Arg	Ser	Glu	Glu	Phe	Asp	Gln	Asp	Gly	Asp	Cys
	50					55					60				
Ser	His	Ser	Thr	Leu	Val	Asn	Glu	Glu	Glu	Asp	Pro	Ser	Gly	Gly	Arg
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Gln	Asp	Trp	Gln	Pro	Arg	Thr	Glu	Gly	Val	Glu	Ile	Thr	Val	Thr	Phe
			85						90					95	
Pro	Arg	Asp	Val	Ser	Pro	Pro	Gln	Glu	Met	Ser	Gln	Glu	Asp	Leu	Lys
			100					105					110		
Glu	Lys	Asn	Leu	Ile	Asn	Ser	Ser	Leu	Gln	Glu	Trp	Ala	Gln	Ala	His
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Ala	Val	Ser	His	Pro	Asn	Glu	Ile	Glu	Thr	Val	Glu	Leu	Arg	Lys	Lys
	130					135					140				
Lys	Leu	Thr	Met	Arg	Pro	Leu	Val	Leu	Gln	Lys	Glu	Glu	Ser	Ser	Arg
145					150					155					160
Glu	Leu	Cys	Asn	Val	Asn	Leu	Gly	Phe	Leu	Leu	Pro	Arg	Ser	Cys	Leu
			165					170						175	
Glu	Leu	Asn	Ile	Ser	Lys	Ser	Val	Thr	Arg	Glu	Asp	Ala	Pro	His	Phe
			180					185					190		
Leu	Lys	Glu	Gln	Gln	Arg	Lys	Ser	Glu	Glu	Phe	Ser	Thr	Ser	His	Met
		195					200					205			
Lys	Tyr	Ser	Gly	Arg	Ser	Ile	Lys	Phe	Leu	Leu	Pro	Pro	Leu	Ser	Leu
	210					215					220				
Leu	Pro	Thr	Arg	Ser	Gly	Val	Leu	Thr	Ile	Pro	Gln	Asn	His	Lys	Phe
225					230					235					240
Pro	Lys	Glu	Lys	Glu	Arg	Asn	Ile	Pro	Ser	Leu	Thr	Ser	Phe	Val	Pro
			245						250					255	
Lys	Leu	Ser	Val	Ser	Val	Arg	Gln	Ser	Asp	Glu	Leu	Ser	Pro	Ser	Asn
			260					265					270		
Glu	Pro	Pro	Gly	Ala	Leu	Val	Lys	Ser	Leu	Met	Asp	Pro	Thr	Leu	Arg
		275					280					285			
Ser	Ser	Asp	Gly	Phe	Ile	Trp	Ser	Arg	Asn	Met	Cys	Ser	Phe	Pro	Lys
	290					295				300					
Thr	Asn	His	His	Arg	Gln	Cys	Leu	Glu	Lys	Glu	Glu	Asn	Trp	Lys	Ser
305					310					315					320
Lys	Glu	Ile	Glu	Glu	Cys	Asn	Lys	Ile	Glu	Ile	Thr	His	Phe	Glu	Lys
			325						330					335	
Gly	Gln	Ser	Leu	Val	Ser	Phe	Glu	Asn	Leu	Lys	Glu	Gly	Asn	Ile	Pro
			340					345					350		
Ala	Val	Arg	Glu	Glu	Asp	Ile	Asp	Cys	His	Gly	Ser	Lys	Thr	Arg	Lys
		355					360					365			
Pro	Glu	Glu	Glu	Asn	Ser	Gln	Tyr	Leu	Ser	Ser	Arg	Lys	Asn	Glu	Ser
	370					375					380				
Ser	Val	Ala	Lys	Asn	Tyr	Glu	Gln	Asp	Pro	Glu	Ile	Val	Cys	Thr	Ile
385					390					395					400
Pro	Ser	Lys	Phe	Gln	Glu	Thr	Gln	His	Ser	Glu	Ile	Thr	Pro	Ser	Gln
			405						410					415	
Asp	Glu	Glu	Met	Arg	Asn	Asn	Lys	Ala	Ala	Ser	Lys	Arg	Val	Ser	Leu
			420					425					430		
His	Lys	Asn	Glu	Ala	Met	Glu	Pro	Asn	Asn	Ile	Leu	Glu	Glu	Cys	Thr
		435					440					445			
Val	Leu	Lys	Ser	Leu	Ser	Ser	Val	Val	Phe	Asp	Asp	Pro	Ile	Asp	Lys
	450					455					460				
Leu	Pro	Glu	Gly	Cys	Ser	Ser	Met	Glu	Thr	Asn	Ile	Lys	Ile	Ser	Ile
465					470					475					480
Ala	Glu	Arg	Ala	Lys	Pro	Glu	Met	Ser	Arg	Met	Val	Pro	Leu	Ile	His
			485						490					495	
Ile	Thr	Phe	Pro	Val	Asp	Gly	Ser	Pro	Lys	Glu	Pro	Val	Ile	Ala	Lys

			500					505					510			
Pro	Ser	Leu	Gln	Thr	Arg	Lys	Gly	Thr	Ile	His	Asn	Asn	His	Ser	Val	
		515					520					525				
Asn	Ile	Pro	Val	His	Gln	Glu	Asn	Asp	Lys	His	Lys	Met	Asn	Ser	His	
	530					535					540					
Arg	Ser	Lys	Leu	Asp	Ser	Lys	Thr	Lys	Thr	Ser	Lys	Lys	Thr	Pro	Gln	
545				550						555					560	
Asn	Phe	Val	Ile	Ser	Thr	Glu	Gly	Pro	Ile	Lys	Pro	Thr	Met	His	Lys	
				565					570					575		
Thr	Ser	Ile	Lys	Thr	Gln	Ile	Phe	Pro	Ala	Leu	Gly	Leu	Val	Asp	Pro	
		580					585						590			
Arg	Pro	Trp	Gln	Leu	Pro	Arg	Phe	Gln	Lys	Lys	Met	Pro	Gln	Ile	Ala	
	595					600						605				
Lys	Lys	Gln	Ser	Thr	His	Arg	Thr	Gln	Lys	Pro	Lys	Lys	Gln	Ser	Phe	
	610					615					620					
Pro	Cys	Ile	Cys	Lys	Asn	Pro	Gly	Thr	Gln	Lys	Ser	Cys	Val	Pro	Leu	
625					630					635					640	
Ser	Val	Gln	Pro	Thr	Glu	Pro	Arg	Leu	Asn	Tyr	Leu	Asp	Leu	Lys	Tyr	
				645					650					655		
Ser	Asp	Met	Phe	Lys	Glu	Ile	Asn	Ser	Thr	Ala	Asn	Gly	Pro	Gly	Ile	
		660					665						670			
Tyr	Glu	Met	Phe	Gly	Thr	Pro	Val	Tyr	Cys	His	Val	Arg	Glu	Thr	Glu	
	675					680						685				
Arg	Asp	Glu	Asn	Thr	Tyr	Tyr	Arg	Glu	Ile	Cys	Ser	Ala	Pro	Ser	Gly	
	690				695						700					
Arg	Arg	Ile	Thr	Asn	Lys	Cys	Arg	Ser	Ser	His	Ser	Glu	Arg	Lys	Ser	
705				710						715					720	
Asn	Ile	Arg	Thr	Arg	Leu	Ser	Gln	Lys	Lys	Thr	His	Met	Lys	Cys	Pro	
				725					730					735		
Lys	Thr	Ser	Phe	Gly	Ile	Lys	Gln	Glu	His	Lys	Val	Leu	Ile	Ser	Lys	
		740					745						750			
Glu	Lys	Ser	Ser	Lys	Ala	Val	His	Ser	Asn	Leu	His	Asp	Ile	Glu	Asn	
	755						760					765				
Gly	Asp	Gly	Ile	Ser	Glu	Pro	Asp	Trp	Gln	Ile	Lys	Ser	Ser	Gly	Asn	
	770					775					780					
Glu	Phe	Leu	Ser	Ser	Lys	Asp	Glu	Ile	His	Pro	Met	Asn	Leu	Ala	Gln	
785					790					795					800	
Thr	Pro	Glu	Gln	Ser	Met	Lys	Gln	Asn	Glu	Phe	Pro	Pro	Val	Ser	Asp	
				805					810					815		
Leu	Ser	Ile	Val	Glu	Glu	Val	Ser	Met	Glu	Glu	Ser	Thr	Gly	Asp	Arg	
		820					825						830			
Asp	Ile	Ser	Asn	Asn	Gln	Ile	Leu	Thr	Thr	Ser	Leu	Arg	Asp	Leu	Gln	
	835						840					845				
Glu	Leu	Glu	Glu	Leu	His	His	Gln	Ile	Pro	Phe	Ile	Pro	Ser	Glu	Asp	
	850				855						860					
Ser	Trp	Ala	Val	Pro	Ser	Glu	Lys	Asn	Ser	Asn	Lys	Tyr	Val	Gln	Gln	
865					870					875					880	
Glu	Lys	Gln	Asn	Thr	Ala	Ser	Leu	Ser	Lys	Val	Asn	Ala	Ser	Arg	Ile	
				885					890					895		
Leu	Thr	Asn	Asp	Leu	Glu	Phe	Asp	Ser	Val	Ser	Asp	His	Ser	Lys	Thr	
		900					905						910			
Leu	Thr	Asn	Phe	Ser	Phe	Gln	Ala	Lys	Gln	Glu	Ser	Ala	Ser	Ser	Gln	
		915					920					925				
Thr	Tyr	Gln	Tyr	Trp	Val	His	Tyr	Leu	Asp	His	Asp	Ser	Leu	Ala	Asn	
	930				935						940					
Lys	Ser	Ile	Thr	Tyr	Gln	Met	Phe	Gly	Lys	Thr	Leu	Ser	Gly	Thr	Asn	
945					950					955					960	
Ser	Ile	Ser	Gln	Glu	Ile	Met	Asp	Ser	Val	Asn	Asn	Glu	Glu	Leu	Thr	
				965					970					975		
Asp	Glu	Leu	Leu	Gly	Cys	Leu	Ala	Ala	Glu	Leu	Leu	Ala	Leu	Asp	Glu	
		980					985						990			

Lys	Asp	Asn	Asn	Ser	Cys	Gln	Lys	Met	Ala	Asn	Glu	Thr	Asp	Pro	Glu	
		995					1000					1005				
Asn	Leu	Asn	Leu	Val	Leu	Arg	Trp	Arg	Gly	Ser	Thr	Pro	Lys	Glu	Met	
	1010					1015					1020					
Gly	Arg	Glu	Thr	Thr	Lys	Val	Lys	Ile	Gln	Arg	His	Ser	Ser	Gly	Leu	
1025					1030				1035						1040	
Arg	Ile	Tyr	Asp	Arg	Glu	Glu	Lys	Phe	Leu	Ile	Ser	Asn	Glu	Lys	Lys	
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Ile	Phe	Ser	Glu	Asn	Ser	Leu	Lys	Ser	Glu	Glu	Pro	Ile	Leu	Trp	Thr	
		1060						1065					1070			
Lys	Gly	Glu	Ile	Leu	Gly	Lys	Gly	Ala	Tyr	Gly	Thr	Val	Tyr	Cys	Gly	
	1075					1080						1085				
Leu	Thr	Ser	Gln	Gly	Gln	Leu	Ile	Ala	Val	Lys	Gln	Val	Ala	Leu	Asp	
	1090					1095					1100					
Thr	Ser	Asn	Lys	Leu	Ala	Ala	Glu	Lys	Glu	Tyr	Arg	Lys	Leu	Gln	Glu	
1105				1110					1115						1120	
Glu	Val	Asp	Leu	Leu	Lys	Ala	Leu	Lys	His	Val	Pro	Asp	Gln	Gly	Pro	
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Ala

<210> 10
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 <212> PRT
 <213> Homo sapiens

<400> 10

Ser	Lys	Lys	Gln	Gln	Leu	Leu	Asp	Ile	Leu	Met	Ser	Ser	Met	Pro	Lys	
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			20					25					30			
Ser	Ser	Pro	Thr	Asp	Leu	Met	Thr	Val	Thr	Lys	Asn	Gln	Asn	Ile	Ile	
		35				40						45				
Leu	Gln	Ser	Ile	Ser	Arg	Ser	Glu	Glu	Phe	Asp	Gln	Asp	Gly	Asp	Cys	
	50					55				60						
Ser	His	Ser	Thr	Leu	Val	Asn	Glu	Glu	Glu	Asp	Pro	Ser	Gly	Gly	Arg	
65				70					75						80	
Gln	Asp	Trp	Gln	Pro	Arg	Thr	Glu	Gly	Val	Glu	Ile	Thr	Val	Thr	Phe	
			85					90						95		
Pro	Arg	Asp	Val	Ser	Pro	Pro	Gln	Glu	Met	Ser	Gln	Glu	Asp	Leu	Lys	
		100					105					110				
Glu	Lys	Asn	Leu	Ile	Asn	Ser	Ser	Leu	Gln	Glu	Trp	Ala	Gln	Ala	His	
		115				120						125				
Ala	Val	Ser	His	Pro	Asn	Glu	Ile	Glu	Thr	Val	Glu	Leu	Arg	Lys	Lys	
	130				135					140						
Lys	Leu	Thr	Met	Arg	Pro	Leu	Val	Leu	Gln	Lys	Glu	Glu	Ser	Ser	Arg	
145				150					155						160	
Glu	Leu	Cys	Asn	Val	Asn	Leu	Gly	Phe	Leu	Leu	Pro	Arg	Ser	Cys	Leu	
			165					170						175		
Glu	Leu	Asn	Ile	Ser	Lys	Ser	Val	Thr	Arg	Glu	Asp	Ala	Pro	His	Phe	
		180						185				190				
Leu	Lys	Glu	Gln	Gln	Arg	Lys	Ser	Glu	Glu	Phe	Ser	Thr	Ser	His	Met	
	195					200						205				
Lys	Tyr	Ser	Gly	Arg	Ser	Ile	Lys	Phe	Leu	Leu	Pro	Pro	Leu	Ser	Leu	
	210				215						220					
Leu	Pro	Thr	Arg	Ser	Gly	Val	Leu	Thr	Ile	Pro	Gln	Asn	His	Lys	Phe	
225				230					235						240	
Pro	Lys	Glu	Lys	Glu	Arg	Asn	Ile	Pro	Ser	Leu	Thr	Ser	Phe	Val	Pro	
			245					250						255		

Lys Leu Ser Val Ser Val Arg Gln Ser Asp Glu Leu Ser Pro Ser Asn

			260					265				270					
Glu	Pro	Pro	Gly	Ala	Leu	Val	Lys	Ser	Leu	Met	Asp	Pro	Thr	Leu	Arg		
		275					280					285					
Ser	Ser	Asp	Gly	Phe	Ile	Trp	Ser	Arg	Asn	Met	Cys	Ser	Phe	Pro	Lys		
	290					295					300						
Thr	Asn	His	His	Arg	Gln	Cys	Leu	Glu	Lys	Glu	Glu	Asn	Trp	Lys	Ser		
305					310					315					320		
Lys	Glu	Ile	Glu	Glu	Cys	Asn	Lys	Ile	Glu	Ile	Thr	His	Phe	Glu	Lys		
				325					330					335			
Gly	Gln	Ser	Leu	Val	Ser	Phe	Glu	Asn	Leu	Lys	Glu	Gly	Asn	Ile	Pro		
			340					345					350				
Ala	Val	Arg	Glu	Glu	Asp	Ile	Asp	Cys	His	Gly	Ser	Lys	Thr	Arg	Lys		
		355					360					365					
Pro	Glu	Glu	Glu	Asn	Ser	Gln	Tyr	Leu	Ser	Ser	Arg	Lys	Asn	Glu	Ser		
	370					375					380						
Ser	Val	Ala	Lys	Asn	Tyr	Glu	Gln	Asp	Pro	Glu	Ile	Val	Cys	Thr	Ile		
385					390					395					400		
Pro	Ser	Lys	Phe	Gln	Glu	Thr	Gln	His	Ser	Glu	Ile	Thr	Pro	Ser	Gln		
				405					410					415			
Asp	Glu	Glu	Met	Arg	Asn	Asn	Lys	Ala	Ala	Ser	Lys	Arg	Val	Ser	Leu		
			420					425					430				
His	Lys	Asn	Glu	Ala	Met	Glu	Pro	Asn	Asn	Ile	Leu	Glu	Glu	Cys	Thr		
		435					440					445					
Val	Leu	Lys	Ser	Leu	Ser	Ser	Val	Val	Phe	Asp	Asp	Pro	Ile	Asp	Lys		
	450					455					460						
Leu	Pro	Glu	Gly	Cys	Ser	Ser	Met	Glu	Thr	Asn	Ile	Lys	Ile	Ser	Ile		
465					470					475					480		
Ala	Glu	Arg	Ala	Lys	Pro	Glu	Met	Ser	Arg	Met	Val	Pro	Leu	Ile	His		
				485					490					495			
Ile	Thr	Phe	Pro	Val	Asp	Gly	Ser	Pro	Lys	Glu	Pro	Val	Ile	Ala	Lys		
			500					505					510				
Pro	Ser	Leu	Gln	Thr	Arg	Lys	Gly	Thr	Ile	His	Asn	Asn	His	Ser	Val		
		515					520					525					
Asn	Ile	Pro	Val	His	Gln	Glu	Asn	Asp	Lys	His	Lys	Met	Asn	Ser	His		
	530					535					540						
Arg	Ser	Lys	Leu	Asp	Ser	Lys	Thr	Lys	Thr	Ser	Lys	Lys	Thr	Pro	Gln		
545					550					555					560		
Asn	Phe	Val	Ile	Ser	Thr	Glu	Gly	Pro	Ile	Lys	Pro	Thr	Met	His	Lys		
				565					570					575			
Thr	Ser	Ile	Lys	Thr	Gln	Ile	Phe	Pro	Ala	Leu	Gly	Leu	Val	Asp	Pro		
			580					585					590				
Arg	Pro	Trp	Gln	Leu	Pro	Arg	Phe	Gln	Lys	Lys	Met	Pro	Gln	Ile	Ala		
		595					600					605					
Lys	Lys	Gln	Ser	Thr	His	Arg	Thr	Gln	Lys	Pro	Lys	Lys	Gln	Ser	Phe		
	610					615					620						
Pro	Cys	Ile	Cys	Lys	Asn	Pro	Gly	Thr	Gln	Lys	Ser	Cys	Val	Pro	Leu		
625					630					635					640		
Ser	Val	Gln	Pro	Thr	Glu	Pro	Arg	Leu	Asn	Tyr	Leu	Asp	Leu	Lys	Tyr		
				645					650					655			
Ser	Asp	Met	Phe	Lys	Glu	Ile	Asn	Ser	Thr	Ala	Asn	Gly	Pro	Gly	Ile		
			660					665					670				
Tyr	Glu	Met	Phe	Gly	Thr	Pro	Val	Tyr	Cys	His	Val	Arg	Glu	Thr	Glu		
		675					680					685					
Arg	Asp	Glu	Asn	Thr	Tyr	Tyr	Arg	Glu	Ile	Cys	Ser	Ala	Pro	Ser	Gly		
	690					695					700						
Arg	Arg	Ile	Thr	Asn	Lys	Cys	Arg	Ser	Ser	His	Ser	Glu	Arg	Lys	Ser		
705					710					715					720		
Asn	Ile	Arg	Thr	Arg	Leu	Ser	Gln	Lys	Lys	Thr	His	Met	Lys	Cys	Pro		
				725					730					735			
Lys	Thr	Ser	Phe	Gly	Ile	Lys	Gln	Glu	His	Lys	Val	Leu	Ile	Ser	Lys		
			740					745					750				

Glu	Lys	Ser	Ser	Lys	Ala	Val	His	Ser	Asn	Leu	His	Asp	Ile	Glu	Asn
		755					760					765			
Gly	Asp	Gly	Ile	Ser	Glu	Pro	Asp	Trp	Gln	Ile	Lys	Ser	Ser	Gly	Asn
	770					775					780				
Glu	Phe	Leu	Ser	Ser	Lys	Asp	Glu	Ile	His	Pro	Met	Asn	Leu	Ala	Gln
785					790					795					800
Thr	Pro	Glu	Gln	Ser	Met	Lys	Gln	Asn	Glu	Phe	Pro	Pro	Val	Ser	Asp
				805					810					815	
Leu	Ser	Ile	Val	Glu	Glu	Val	Ser	Met	Glu	Glu	Ser	Thr	Gly	Asp	Arg
			820					825					830		
Asp	Ile	Ser	Asn	Asn	Gln	Ile	Leu	Thr	Thr	Ser	Leu	Arg	Asp	Leu	Gln
	835						840					845			
Glu	Leu	Glu	Glu	Leu	His	His	Gln	Ile	Pro	Phe	Ile	Pro	Ser	Glu	Asp
	850					855					860				
Ser	Trp	Ala	Val	Pro	Ser	Glu	Lys	Asn	Ser	Asn	Lys	Tyr	Val	Gln	Gln
865					870					875					880
Glu	Lys	Gln	Asn	Thr	Ala	Ser	Leu	Ser	Lys	Val	Asn	Ala	Ser	Arg	Ile
				885					890					895	
Leu	Thr	Asn	Asp	Leu	Glu	Phe	Asp	Ser	Val	Ser	Asp	His	Ser	Lys	Thr
			900					905					910		
Leu	Thr	Asn	Phe	Ser	Phe	Gln	Ala	Lys	Gln	Glu	Ser	Ala	Ser	Ser	Gln
		915					920					925			
Thr	Tyr	Gln	Tyr	Trp	Val	His	Tyr	Leu	Asp	His	Asp	Ser	Leu	Ala	Asn
	930					935					940				
Lys	Ser	Ile	Thr	Tyr	Gln	Met	Phe	Gly	Lys	Thr	Leu	Ser	Gly	Thr	Asn
945					950					955					960
Ser	Ile	Ser	Gln	Glu	Ile	Met	Asp	Ser	Val	Asn	Asn	Glu	Glu	Leu	Thr
				965					970					975	
Asp	Glu	Leu	Leu	Gly	Cys	Leu	Ala	Ala	Glu	Leu	Leu	Ala	Leu	Asp	Glu
			980					985					990		
Lys	Asp	Asn	Asn	Ser	Cys	Gln	Lys	Met	Ala	Asn	Glu	Thr	Asp	Pro	Glu
		995					1000					1005			
Asn	Leu	Asn	Leu	Val	Leu	Arg	Trp	Arg	Gly	Ser	Thr	Pro	Lys	Glu	Met
	1010					1015					1020				
Gly	Arg	Glu	Thr	Thr	Lys	Val	Lys	Ile	Gln	Arg	His	Ser	Ser	Gly	Leu
1025					1030					1035					1040
Arg	Ile	Tyr	Asp	Arg	Glu	Glu	Lys	Phe	Leu	Ile	Ser	Asn	Glu	Lys	Lys
				1045					1050					1055	
Ile	Phe	Ser	Glu	Asn	Ser	Leu	Lys	Ser	Glu	Glu	Pro	Ile	Leu	Trp	Thr
			1060					1065					1070		
Lys	Gly	Glu	Ile	Leu	Gly	Lys	Gly	Ala	Tyr	Gly	Thr	Val	Tyr	Cys	Gly
	1075						1080					1085			
Leu	Thr	Ser	Gln	Gly	Gln	Leu	Ile	Ala	Val	Lys	Gln	Val	Ala	Leu	Asp
	1090					1095					1100				
Thr	Ser	Asn	Lys	Leu	Ala	Ala	Glu	Lys	Glu	Tyr	Arg	Lys	Leu	Gln	Glu
1105					1110					1115					1120
Glu	Val	Asp	Leu	Leu	Lys	Ala	Leu	Lys	His	Val	Asn	Ile	Val	Ala	Tyr
				1125					1130					1135	
Leu	Gly	Thr	Cys	Leu	Gln	Glu	Asn	Thr	Val	Ser	Ile	Phe	Met	Glu	Phe
			1140					1145					1150		
Val	Pro	Gly	Gly	Ser	Ile	Ser	Ser	Ile	Ile	Asn	Arg	Phe	Gly	Pro	Leu
	1155						1160					1165			
Pro	Glu	Met	Val	Phe	Cys	Lys	Tyr	Thr	Lys	Gln	Ile	Leu	Gln	Gly	Val
	1170					1175					1180				
Ala	Tyr	Leu	His	Glu	Asn	Cys	Val	Val	His	Arg	Asp	Ile	Lys	Gly	Asn
1185					1190					1195					1200
Asn	Val	Met	Leu	Met	Pro	Thr	Gly	Ile	Ile	Lys	Leu	Ile	Asp	Phe	Gly
				1205					1210					1215	
Cys	Ala	Arg	Arg	Leu	Ala	Trp	Ala	Gly	Leu	Asn	Gly	Thr	His	Ser	Asp
			1220					1225					1230		
Met	Leu	Lys	Ser	Met	His	Gly	Thr	Pro	Tyr	Trp	Met	Ala	Pro	Glu	Val

1235	1240	1245
Ile Asn Glu Ser Gly Tyr	Gly Arg Lys Ser Asp	Ile Trp Ser Ile Gly
1250	1255	1260
Cys Thr Val Phe Glu Met	Ala Thr Gly Lys Pro	Pro Leu Ala Ser Met
1265	1270	1275
Asp Arg Met Ala Ala Met	Phe Tyr Ile Gly Ala	His Arg Gly Leu Met
1285	1290	1295
Pro Pro Leu Pro Asp His	Phe Ser Glu Asn Ala	Ala Asp Phe Val Arg
1300	1305	1310
Met Cys Leu Thr Arg Asp	Gln His Glu Arg Pro	Ser Ala Leu Gln Leu
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Leu Lys His Ser Phe Leu	Glu Arg Ser His	
1330	1335	

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Ser Lys Lys Gln Gln Leu Leu Asp Ile Leu Met Ser Ser Met Pro Lys	
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Pro Glu Arg His Ala Glu Ser Leu Leu Asp Ile Cys His Asp Thr Asn	
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Ser Ser Pro Thr Asp Leu Met Thr Val Thr Lys Asn Gln Asn Ile Ile	
35	40
Leu Gln Ser Ile Ser Arg Ser Glu Glu Phe Asp Gln Asp Gly Asp Cys	
50	55
Ser His Ser Thr Leu Val Asn Glu Glu Glu Asp Pro Ser Gly Gly Arg	
65	70
Gln Asp Trp Gln Pro Arg Thr Glu Gly Val Glu Ile Thr Val Thr Phe	
85	90
Pro Arg Asp Val Ser Pro Pro Gln Glu Met Ser Gln Glu Asp Leu Lys	
100	105
Glu Lys Asn Leu Ile Asn Ser Ser Leu Gln Glu Trp Ala Gln Ala His	
115	120
Ala Val Ser His Pro Asn Glu Ile Glu Thr Val Glu Leu Arg Lys Lys	
130	135
Lys Leu Thr Met Arg Pro Leu Val Leu Gln Lys Glu Glu Ser Ser Arg	
145	150
Glu Leu Cys Asn Val Asn Leu Gly Phe Leu Leu Pro Arg Ser Cys Leu	
165	170
Glu Leu Asn Ile Ser Lys Ser Val Thr Arg Glu Asp Ala Pro His Phe	
180	185
Leu Lys Glu Gln Gln Arg Lys Ser Glu Glu Phe Ser Thr Ser His Met	
195	200
Lys Tyr Ser Gly Arg Ser Ile Lys Arg His Ser Ser Gly Leu Arg Ile	
210	215
Tyr Asp Arg Glu Glu Lys Phe Leu Ile Ser Asn Glu Lys Lys Ile Phe	
225	230
Ser Glu Asn Ser Leu Lys Ser Glu Glu Pro Ile Leu Trp Thr Lys Val	
245	250
Asp Leu Leu Lys Ala Leu Lys His Val Asn Ile Val Ala Tyr Leu Gly	
260	265
Thr Cys Leu Gln Glu Asn Thr Val Ser Ile Phe Met Glu Phe Val Pro	
275	280
Gly Gly Ser Ile Ser Ser Ile Ile Asn Arg Phe Gly Pro Leu Pro Glu	
290	295
Met Val Phe Cys Lys Tyr Thr Lys Gln Ile Leu Gln Gly Val Ala Tyr	
305	310
	315
	320

Leu	His	Glu	Asn	Cys	Val	Val	His	Arg	Asp	Ile	Lys	Gly	Asn	Asn	Val
				325					330					335	
Met	Leu	Met	Pro	Thr	Gly	Ile	Ile	Lys	Leu	Ile	Asp	Phe	Gly	Cys	Ala
			340					345					350		
Arg	Arg	Leu	Ala	Trp	Ala	Gly	Leu	Asn	Gly	Thr	His	Ser	Asp	Met	Leu
		355					360					365			
Lys	Ser	Met	His	Gly	Thr	Pro	Tyr	Trp	Met	Ala	Pro	Glu	Val	Ile	Asn
	370					375					380				
Glu	Ser	Gly	Tyr	Gly	Arg	Lys	Ser	Asp	Ile	Trp	Ser	Ile	Gly	Cys	Thr
385					390					395					400
Val	Phe	Glu	Met	Ala	Thr	Gly	Lys	Pro	Pro	Leu	Ala	Ser	Met	Asp	Arg
				405					410					415	
Met	Ala	Ala	Met	Phe	Tyr	Ile	Gly	Ala	His	Arg	Gly	Leu	Met	Pro	Pro
			420					425					430		
Leu	Pro	Asp	His	Phe	Ser	Glu	Asn	Ala	Ala	Asp	Phe	Val	Arg	Met	Cys
		435					440					445			
Leu	Thr	Arg	Asp	Gln	His	Glu	Arg	Pro	Ser	Ala	Leu	Gln	Leu	Leu	Lys
	450					455					460				
His	Ser	Phe	Leu	Glu	Arg	Ser	His								
465					470										

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<400> 12

Ser	Lys	Lys	Gln	Gln	Leu	Leu	Asp	Ile	Leu	Met	Ser	Ser	Met	Pro	Lys
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Pro	Glu	Arg	His	Ala	Glu	Ser	Leu	Leu	Asp	Ile	Cys	His	Asp	Thr	Asn
			20					25					30		
Ser	Ser	Pro	Thr	Asp	Leu	Met	Thr	Val	Thr	Lys	Asn	Gln	Asn	Ile	Ile
		35					40					45			
Leu	Gln	Ser	Ile	Ser	Arg	Ser	Glu	Glu	Phe	Asp	Gln	Asp	Gly	Asp	Cys
	50					55					60				
Ser	His	Ser	Thr	Leu	Val	Asn	Glu	Glu	Glu	Asp	Pro	Ser	Gly	Gly	Arg
65					70					75					80
Gln	Asp	Trp	Gln	Pro	Arg	Thr	Glu	Gly	Val	Glu	Ile	Thr	Val	Thr	Phe
			85						90					95	
Pro	Arg	Asp	Val	Ser	Pro	Pro	Gln	Glu	Met	Ser	Gln	Glu	Asp	Leu	Lys
			100					105					110		
Glu	Lys	Asn	Leu	Ile	Asn	Ser	Ser	Leu	Gln	Glu	Trp	Ala	Gln	Ala	His
		115					120					125			
Ala	Val	Ser	His	Pro	Asn	Glu	Ile	Glu	Thr	Val	Glu	Leu	Arg	Lys	Lys
	130					135					140				
Lys	Leu	Thr	Met	Arg	Pro	Leu	Val	Leu	Gln	Lys	Glu	Glu	Ser	Ser	Arg
145					150					155					160
Glu	Leu	Cys	Asn	Val	Asn	Leu	Gly	Phe	Leu	Leu	Pro	Arg	Ser	Cys	Leu
			165						170					175	
Glu	Leu	Asn	Ile	Ser	Lys	Ser	Val	Thr	Arg	Glu	Asp	Ala	Pro	His	Phe
			180					185					190		
Leu	Lys	Glu	Gln	Gln	Arg	Lys	Ser	Glu	Glu	Phe	Ser	Thr	Ser	His	Met
		195					200					205			
Lys	Tyr	Ser	Gly	Arg	Ser	Ile	Lys	Arg	His	Ser	Ser	Gly	Leu	Arg	Ile
	210					215					220				
Tyr	Asp	Arg	Glu	Glu	Lys	Phe	Leu	Ile	Ser	Asn	Glu	Lys	Lys	Ile	Phe
225					230					235					240
Ser	Glu	Asn	Ser	Leu	Lys	Ser	Glu	Glu	Pro	Ile	Leu	Trp	Thr	Lys	Gly
			245						250					255	
Glu	Ile	Leu	Gly	Lys	Gly	Ala	Tyr	Gly	Thr	Val	Tyr	Cys	Gly	Leu	Thr

			260					265				270					
Ser	Gln	Gly	Gln	Leu	Ile	Ala	Val	Lys	Gln	Val	Ala	Leu	Asp	Thr	Ser		
		275						280				285					
Asn	Lys	Leu	Ala	Ala	Glu	Lys	Glu	Tyr	Arg	Lys	Leu	Gln	Glu	Glu	Val		
	290					295					300						
Asp	Leu	Leu	Lys	Ala	Leu	Lys	His	Val	Asn	Ile	Val	Ala	Tyr	Leu	Gly		
305					310					315					320		
Thr	Cys	Leu	Gln	Glu	Asn	Thr	Val	Ser	Ile	Phe	Met	Glu	Phe	Val	Pro		
			325						330						335		
Gly	Gly	Ser	Ile	Ser	Ser	Ile	Ile	Asn	Arg	Phe	Gly	Pro	Leu	Pro	Glu		
		340						345				350					
Met	Val	Phe	Cys	Lys	Tyr	Thr	Lys	Gln	Ile	Leu	Gln	Gly	Val	Ala	Tyr		
	355						360					365					
Leu	His	Glu	Asn	Cys	Val	Val	His	Arg	Asp	Ile	Lys	Gly	Asn	Asn	Val		
370						375					380						
Met	Leu	Met	Pro	Thr	Gly	Ile	Ile	Lys	Leu	Ile	Asp	Phe	Gly	Cys	Ala		
385					390					395					400		
Arg	Arg	Leu	Ala	Trp	Ala	Gly	Leu	Asn	Gly	Thr	His	Ser	Asp	Met	Leu		
			405						410					415			
Lys	Ser	Met	His	Gly	Thr	Pro	Tyr	Trp	Met	Ala	Pro	Glu	Val	Ile	Asn		
		420						425				430					
Glu	Ser	Gly	Tyr	Gly	Arg	Lys	Ser	Asp	Ile	Trp	Ser	Ile	Gly	Cys	Thr		
	435					440						445					
Val	Phe	Glu	Met	Ala	Thr	Gly	Lys	Pro	Pro	Leu	Ala	Ser	Met	Asp	Arg		
450						455					460						
Met	Ala	Ala	Met	Phe	Tyr	Ile	Gly	Ala	His	Arg	Gly	Leu	Met	Pro	Pro		
465					470					475					480		
Leu	Pro	Asp	His	Phe	Ser	Glu	Asn	Ala	Ala	Asp	Phe	Val	Arg	Met	Cys		
			485						490					495			
Leu	Thr	Arg	Asp	Gln	His	Glu	Arg	Pro	Ser	Ala	Leu	Gln	Leu	Leu	Lys		
		500						505				510					
His	Ser	Phe	Leu	Glu	Arg	Ser	His										
	515						520										

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24

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25